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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/675,529
Filing Date: September 30, 2003
Appellant(s): HEIN, JERRELL

Nicole Teitler Cave
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 29 September 2008 appealing from the Office action mailed 03 June 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5451912	Torode	9-1995
6882214	Spenea	4-2005
6670852	Hauck	12-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1 – 3, 5 – 9, 11, 13 – 20, and 22 – 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,451,912 (hereinafter Torode) in view of US Patent No. 6,882,214 (hereinafter Spenea).

As per claims 1 and 19, Torode teaches an apparatus comprising an Output Disable (OD) terminal (Torode; Figures 1 – 2) wherein the OD terminal has two modes of operation. In the first mode, the terminal is used as a programming terminal that accepts serial data that determines the operation of the apparatus (Torode; Col 4 Lines 15 – 19). In the second mode, the terminal is used as an output enable terminal that enables output from the apparatus determining on the voltage on the terminal (Torode; Col 3 Lines 25 – 31).

Torode does not teach wherein the mode change from the first mode to the second mode permanently disables the first mode and wherein the control circuit is responsive to a communication received over the terminal to convert the terminal to the second mode of operation.

However, Spenea teaches an IC trimming method that involves programming trimming data in the IC and then performing a locking step. The locking step disconnects a trimming block from the pins on the package and permanently disables the trimming block (Spenea; Col 1 Lines 14 – 19). The locking is performed by receiving a current over the terminal and blowing a fuse in response to the current (Spenea; Col 3 Lines 56 – 67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Torode to include the permanent mode change because doing so allows for preservation of the programmed parameter values (Spenea; Col 1 Lines 14 – 19).

As per claim 2, Spenea also teaches wherein once the terminal is converted to the second mode of operation, the first mode of operation for the terminal is permanently disabled (Spenea; Col 1 Lines 14 – 19).

As per claims 3, 13, and 20, Torode also teaches wherein a terminal configuration determining the mode of operation of the terminal is stored in a non-volatile memory (Torode; Figure 7 Item 740, Col 6 Lines 56 – 60).

As per claims 5 and 15, Torode also teaches wherein the serial communication received over the terminal in the first mode includes a command and write data (Torode; Figure 9, Col 7 Lines 10 – 13).

As per claims 6 and 16, Torode also teaches wherein the control logic distinguishes between a calibration clock and a serial communication received on the terminal (Torode; Col 8 Lines 11 – 13).

As per claims 7 and 17, Torode also teaches wherein the output enable function is for controlling the output of one or more clocks according to the voltage value of the terminal (Torode; Col 3 Lines 26 – 31).

As per claim 8, Torode also teaches wherein a controllable oscillator is coupled to receive a reference frequency and to supply a clock signal that is coupled to an output terminal that is controlled by the output enable terminal (Torode; Col 5 Lines 23 – 33); and a resonating device coupled to supply the reference frequency (Torode; Figures 2 – 4 Item 220).

As per claim 9, Torode also teaches wherein the terminal is on a package (Torode; Figure 1 Item 100, Col 2 Line 64 – Col 3 Line 25), the package including an integrated circuit (Torode; Figure 2 Item 210) and a resonating device (Torode; Figures 2 – 4 Item 220), the integrated circuit including the controllable oscillator (Torode; Figure 5 Item 560), and the resonating device being a crystal device (Torode; Figures 2 – 4 Item 220, Col 3 Lines 38 – 51).

As per claim 11, Torode teaches an apparatus comprising an Output Disable (OD) terminal (Torode; Figures 1 – 2) wherein the OD terminal has two modes of

operation. In the first mode, the terminal is used as a programming terminal that accepts serial data that determines the operation parameters of the apparatus (Torode; Col 4 Lines 15 – 19). In the second mode, the terminal is used as an output enable terminal that enables output from the apparatus determining on the voltage on the terminal (Torode; Col 3 Lines 25 – 31).

Torode does not teach wherein the mode change from the first mode to the second mode permanently disables the first mode and wherein the control circuit is responsive to a communication received over the terminal to convert the terminal to the second mode of operation.

However, Spenea teaches an IC trimming method that involves programming trimming data in the IC and then performing a locking step. The locking step disconnects a trimming block from the pins on the package and permanently disables the trimming block (Spenea; Col 1 Lines 14 – 19). The locking is performed by receiving a current over the terminal and blowing a fuse in response to the current (Spenea; Col 3 Lines 56 – 67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Torode to include the permanent mode change because doing so allows for preservation of the programmed parameter values (Spenea; Col 1 Lines 14 – 19).

As per claim 14, Torode also teaches wherein the control circuit is responsive to a communication received over the terminal to convert the terminal to the second mode of operation (Torode; Col 4 Lines 15 – 19).

As per claim 18, Torode also teaches wherein the terminal is on a package, the package including an integrated circuit and a resonating device, the resonating device being one of a crystal device (Torode; Figure 1 Item 100).

As per claims 22 and 23, Spenea also teaches that converting from the first mode to the second mode is a part of a locking function (Spenea; Col 1 Lines 14 – 19). The locking function includes permanently disabling the first mode of operation (Spenea; Col 1 Lines 14 – 19) and therefore teaches that the second mode of operation is not accessible without permanently disabling the first mode of operation.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,451,912 (hereinafter Torode) in view of US Patent No. 6,882,214 (hereinafter Spenea) and further in view of US Patent No. 6,670,852 (hereinafter Hauck).

As per claim 10, Torode teaches an apparatus comprising an Output Disable (OD) terminal (Torode; Figures 1 – 2) wherein the OD terminal has two modes of operation. In the first mode, the terminal is used as a programming terminal that accepts serial data that determines the operation of the apparatus (Torode; Col 4 Lines 15 – 19). In the second mode, the terminal is used as an output enable terminal that enables output from the apparatus determining on the voltage on the terminal (Torode; Col 3 Lines 25 – 31). Torode also teaches wherein a terminal receives serial communications and a calibration clock (Torode; Col 8 Lines 17 – 20).

Torode does not teach wherein the mode change from the first mode to the second mode permanently disables the first mode.

However, Spenea teaches an IC trimming method that involves programming trimming data in the IC and then performing a locking step. The locking step disconnects a trimming block from the pins on the package and permanently disables the trimming block (Spenea; Col 1 Lines 14 – 19). The locking is performed by receiving a current over the terminal and blowing a fuse in response to the current (Spenea; Col 3 Lines 56 – 67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Torode to include the permanent mode change because doing so allows for preservation of the programmed parameter values (Spenea; Col 1 Lines 14 – 19).

Torode in combination with Spenea does not teach wherein the apparatus comprises a second terminal that functions as a dedicated programmable input/output terminal.

However, Hauck teaches a programmable crystal oscillator with a dedicated programming input terminal (Hauck; Figure 2 Item 120) that does not get converted into an output enable terminal.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Torode in combination with Spenea to include the dedicated programming terminal because it allows for in-system tuning of the crystal oscillator by the user (Hauck; Col 6 Lines 15 – 16).

(10) Response to Argument

Appellant's arguments filed 29 September 2008 have been considered but they are not persuasive.

Ground I:

Claims 1-3, 5-9, and 22

Applicant has failed to identify any claimed limitation that is not met by one of the cited prior art references.

In response to applicant's argument that the proposed combination is not a predictable use of the input terminal of Spenea according to its established function of providing a power supply signal, the Examiner submits that the function of the input terminal of Spenea is not relied upon. Only the permanent conversion from one mode of operation to another mode of operation of Spenea is relied upon.

In response to applicant's argument that the combination of Torode and Spenea changes the function of the OD pin of Torode from its established function of receiving an output disable signal and receiving serial input data to receiving a power supply signal of Spenea, the Examiner submits that raising the voltage on an input pin in order to blow a fuse (as Spenea teaches) does not change the function of the input pin to a power supply pin. Raising the voltage on a pin does not require the pin to be a voltage pin. Thus, the combination of Torode and Spenea teaches an input pin which can receive a high voltage in order to permanently convert the input pin from a first mode of operation to a second mode of operation.

Claim 11, 13, 16-18, 23

Applicant makes the same argument as presented with respect to "Claims 1-3, 5-9, and 22" above.

In response to applicant's argument that the current that is used to blow the fuse of Spenea fails to teach or suggest a communication received over the terminal to convert the terminal to a second mode of operation, the Examiner submits that the applicant has not defined the term "communication" so as to exclude a current received over a terminal, as taught by Spenea. Therefore, the current of Spenea is interpreted to be the communication which converts the pin to a second mode of operation.

Claims 14 and 15

Applicant makes the same argument as presented with respect to "Claims 11, 13, 16-18, 23" above.

Claims 19 and 20

Applicant makes the same argument as presented with respect to "Claims 1-3, 5-9, and 22" above.

Applicant makes the same argument as presented with respect to "Claims 11, 13, 16-18, 23" above.

Ground II:

Applicant makes the same argument as presented with respect to "Claims 1-3, 5-9, and 22" above.

In response to applicant's argument that Hauck does not teach or suggest that pin 120 receives serial communications required by claim 10 and that Torode teaches away from combination with Hauck, the Examiner submits that Torode only teaches an embodiment that does not have a dedicated programming pin. Torode does not teach that a dedicated programming pin is undesirable for a specific reason, and only teaches that such a pin is not required. Therefore, there is no teaching away from a dedicated programming pin. Also, Torode teaches wherein a programming pin can receive serial communications and a calibration clock. This teaching in combination with the dedicated programming pin of Hauck teaches the dedicated programming pin as claimed.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Richard Franklin/

Conferees:

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